In semiconductor manufacturing fabs, chemicals are available on demand by utilizing bulk chemical delivery systems. This not only reduces production costs but also improves process efficiency and the yield by eliminating the manual chemical pour. For this purpose, the semiconductor sector of CWSC offers a variety of chemical supplying platforms providing a long term reliability while requiring minimal maintenance. All of our units have ergonomic design and simultaneously are space efficient at tight work spaces.

Official URL: ***Chengwei Semiconductor***

LDS Liquid Source Delivery Equipment

Liquid Source Delivery (LDS) equipment plays a vital role in ultra-high-purity (UHP) process fluid systems used in advanced semiconductor fabrication. LDS units precisely vaporize and deliver liquid chemical precursors—such as TEOS, TMA, and DEZ—to process tools for chemical vapor deposition (CVD), atomic layer deposition (ALD), and related thin-film processes.

These systems typically integrate temperature-controlled bubblers or evaporators, high-purity carrier gas flow control, and advanced pressure regulation to generate stable vapor streams with consistent concentration. Constructed from electropolished stainless steel and equipped with orbital-welded tubing, LDS equipment maintains stringent purity levels, minimizing particle generation, moisture, and metallic contamination that could degrade device yields.

Key features include automated level sensing, dual-source switching for continuous operation, precise mass-flow controllers, and multi-stage safety interlocks with nitrogen purging. Real-time monitoring ensures stable delivery rates critical for uniform film thickness and composition at sub-nanometer scales.

By enabling reliable, contamination-free precursor delivery, LDS systems support high-volume manufacturing of logic, memory, and power devices. As process nodes shrink and 3D architectures proliferate, the precision and purity provided by modern Liquid Source Delivery Equipment remain essential for achieving the process control and yield required in next-generation semiconductor production.

Liquid-Source Evaporation Chamber

The Liquid-Source Evaporation Chamber is a specialized component within ultra-high-purity (UHP) liquid precursor delivery systems used in advanced semiconductor fabrication. It converts high-purity liquid chemicals—such as TEOS, TMA, DEZ, and other organometallic precursors—into stable vapor streams for processes including chemical vapor deposition (CVD) and atomic layer deposition (ALD).

Typically integrated into Liquid Source Delivery (LDS) equipment, the chamber employs precise temperature control, carrier-gas bubbling, or direct evaporation techniques to generate consistent vapor concentrations. Constructed from electropolished stainless steel with orbital-welded UHP tubing, it maintains exceptional cleanliness to prevent particle, moisture, or metallic contamination that could compromise thin-film quality and device yield.

Key design features include accurate level monitoring, dual-zone heating for temperature uniformity, pressure regulation, and automated purge sequences. These ensure stable vapor output, rapid response to process demands, and continuous operation through dual-source capability. Multi-stage safety interlocks further protect against over-temperature or pressure anomalies when handling reactive or pyrophoric materials.

By delivering precise, contamination-free precursor vapors, Liquid-Source Evaporation Chambers enable uniform film thickness, composition control, and high process repeatability at advanced technology nodes. As semiconductor manufacturers pursue finer geometries and complex 3D structures, these chambers remain essential for reliable precursor management in high-volume manufacturing environments.

MIXER Gas Mixing Equipment

Application areas: Gas blending equipment that uses MFCs to precisely control the flow of two or more gases, followed by concentration analysis using a concentration analyzer to blend the gases into the desired target concentration, and then safely and reliably deliver the blended gas to process equipment.

Keyword: MIXER Gas Mixing Equipment

Application areas: Gas blending equipment that uses MFCs to precisely control the flow of two or more gases, followed by concentration analysis to ensure the blended gas meets the customer’s specified concentration, and then safely and reliably delivers the gas to the process equipment.

Process Application: MFC controls the flow rate, a concentration analyzer measures the concentration, a buffer tank stores the gas, and the mixed gas is continuously delivered.

Customer Type: Semiconductor chip manufacturing, flat-panel display industry, solar cells, electronic component manufacturing, and other industries